

WestEnd25

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1229-1231 25St. NW

Charles Miller – Construction Management

Consultant – Dr. Riley

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Final Report



WestEnd25

Charles Miller ■ Architectural Engineering ■ Construction Management



■ Project Overview

Owner: Vornado-Charles E. Smith
Location: 1229-31 25th St. NW
 Washington D.C. 20037
Total Square Feet: 323,380 sq. ft.

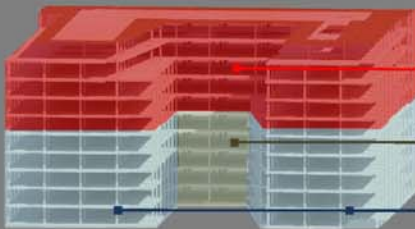
General Contractor :
 James G. Davis Construction Corp.
Project Delivery: Negotiated GMP
Project Cost : \$76 million

■ Architecture



Architects: Shalom Baranes Associates Architects
Exterior Façade: The architectural design of WestEnd25 developed from the two existing office buildings. The footprint of WestEnd25 resembles a U shape facing the adjacent NW 25th Street. West End 25 stands ten stories tall and contains 283 luxury apartments. The two prime landscaping features of WestEnd25 are the entrance courtyard and the roof top. The courtyard features an entrance colonnade and a water fountain. The roof features a pool, terraces and vegetation.

■ Structural



Structural Concrete Slabs:
Added Levels: 6" Post-Tensioned
Connection: 7.5" Post-Tensioned
Existing: 7.5" Conventionally Reinforced

Structural Engineer: Tadjer Cohen Edelson Assoc.
 WestEnd25 is supported by spread footings. The existing superstructure of WestEnd25 consists of conventionally reinforced concrete with a 20' by 20' column grid. The 1229 and 1231 buildings are connected by a 7" post-tensioned concrete slab. The additional floors maintain the 20' by 20' column grid and primarily have a post-tensioned concrete slab thickness of 6".

■ Mechanical, Electrical and Lighting

MEP Engineers : GHT Limited



The apartments of WestEnd25 are conditioned by water cooled heat pump unit. To increase efficiency for the public conditioning system, two enthalpy wheels transfer heat between exhaust air and outdoor air. Power will enter WestEnd25 from two locations. The high power, 3 phase 460 Volt, will enter the 1231 building and the low power, 3 phase 240 volt, will enter 1229 building. Apartment lighting utilizes track lighting for kitchens and living areas and recessed fluorescent lighting for bedrooms, bathrooms and walk-in closets.



Note: Pictures and rendering were created by Shalom Baranes Associates and have been provided for the use on Senior Thesis



■ www.engr.psu.edu/ae/thesis/portfolios/2009/cmm5035 ■



Executive Summary:

WestEnd25 is a conversion of two six story office buildings to residential rental apartments. The project added four post tensioned concrete stories to the top of the existing buildings, and will fully connect the two buildings. Within this Final Report there are several analyses that look at the project schedule, site logistics, and cost implication of suggested system changes. The main theme of the construction management research analyses within this report is the reduction of productivity. Information for the analyses came from actual project documentation, 2008 R.S. Means Cost Data, meetings with industry professionals, and construction knowledge gained through course work and on the job experiences.

The Concrete Placement analysis looks at placing concrete with a pump as opposed to the original concrete placement method, crane and bucket. The primary advantage of the pump is the ability to be more productive during the placement. One drawback is that the productivity to form and rebar does not increase. This fact minimizes the shorter placement time of the concrete pump. Another drawback is the sizes of the connecting slabs are not large enough to make the pump use efficient. The analysis found that the concrete pump placement method would shorten the schedule by 10 day and save nearly \$93,000. Therefore, the benefits of the more productive pump placement are not realized on this project and a more familiar but slower method is acceptable.

The Façade analysis looks at replacing the brick façade with a precast façade. The advantage of a precast façade is that it is fabricated off-site increasing quality and decreasing costs. Not only does the Façade analysis look at the cost and schedule savings, but it also looks at the current brick installation productivity, thermal barrier differences, as well as the structural weight implications of the precast façade. Both the R-Value analysis and the structural analysis prove that a precast exterior façade is feasible. But, because of the complex issues involved with precast in an urban environment on a mid rise building there can be considerable amount of hesitation to implement, even with the cost savings of \$230, 000. The risk involved is high and only a team with several years of experience would be able to determine their capabilities of maneuvering through the urban alley ways and not causing any damage. From the many issues that arose in analyzing the site plan one can determine a more practical use of precast would be on a low rise facility with large open areas around the perimeter of the building.

The spatial planning analysis attempted to create a workflow to animate the space planning process by creating masses that would allow someone with little software experience to create a 4D spatial plan. As more and more architect utilize Building Information Modeling software there will be opportunities to use the software to plan construction sequences. Research into the best practices to employ this software need to be completed to assure the most useful and productive method is used. The placing of the masses took a considerable amount of time. Much more than expected and more than any project manager or superintendent would be willing to devote.

The final analysis was based on the critical industry issue of owner involvement in LEED Certification. For this analysis a survey of industry was completed to learn how some owners are leading their projects toward certification and how other owners hinder their projects. The answers from the survey served as a basis of research to learn more about important decisions for LEED Certification. Because a new version of LEED will be unveiled research was carried into the differences between the old and new version of LEED criteria.

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